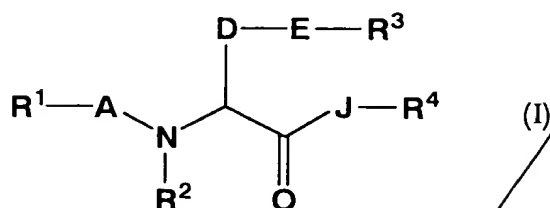


Claims

1. An amino acid derivative of the formula (I)



(wherein,

R¹ is

- 1) phenyl,
- 2) C3-8 cycloalkyl,
- 3) heterocyclic ring,
- 4) C1-4 alkyl substituted with phenyl, C3-8 cycloalkyl or heterocyclic ring,
- 5) C1-4 alkoxy substituted with phenyl, C3-8 cycloalkyl or heterocyclic ring, or
- 6) C2-4 alkenyl substituted with phenyl, C3-8 cycloalkyl or heterocyclic ring,

provided that all the said phenyl, C3-8 cycloalkyl and heterocyclic ring in R¹ is substituted with (a) four C1-4 alkyl or (b) one substituent selected from the following (i)-(xii) essentially, and the said ring may be substituted with 1 ~ 3 of substituent(s) selected from the group consisting of (i)-(xxiii):

- (i) oxo,
- (ii) C5-8 alkyl,
- (iii) -COO-R⁵ (in which, R⁵ is hydrogen, C5-8 alkyl, C2-8 alkenyl, or C1-4 alkyl substituted with 1 ~ 3 of halogen or C1-4 alkoxy),
- (iv) -(C1-4 alkylene)-COOR⁶ (in which, R⁶ is hydrogen, C1-8 alkyl, C2-8 alkenyl or C1-4 alkyl substituted with 1 ~ 3 of halogen),
- (v) -CO-R⁷ (in which, R⁷ is C5-8 alkyl, C2-4 alkenyl, carbocyclic ring, heterocyclic ring or C1-8 alkyl substituted with one substituent selected from the following (1)-(8);
- (1) carbocyclic ring,

- (2) heterocyclic ring,
(3) hydroxy,
(4) C1-4 alkoxy,
(5) -OCO-(C1-4 alkyl),
(6) -O-(C1-4 alkylene)-O-(C1-4 alkyl),
(7) NR^8R^9 (in which, R^8 and R^9 each, independently, is hydrogen or C1-4 alkyl),

(8) halogen),
(vi) -(C1-4 alkylene)-CO- R^{10} (in which, R^{10} is C1-8 alkyl, C2-4 alkenyl, carbocyclic ring, heterocyclic ring or C1-8 alkyl substituted with one substituent selected from the following (1)-(8);

- (1) carbocyclic ring,
(2) heterocyclic ring,
(3) hydroxy,
(4) C1-4 alkoxy,
(5) -OCO-(C1-4 alkyl),
(6) -O-(C1-4 alkylene)-O-(C1-4 alkyl),
(7) $\text{NR}^{11}\text{R}^{12}$ (in which, R^{11} and R^{12} each, independently, is hydrogen or C1-4 alkyl),

(8) halogen),

(vii) -CO-CO- R^{13} ,

(viii) -CO-(C1-4 alkylene)-CO- R^{14} ,

(ix) -SO₂- R^{15} (in which, R^{13} , R^{14} and R^{15} each, independently, is C1-8 alkyl, C2-4 alkenyl, carbocyclic ring, heterocyclic ring, hydroxy, C1-4 alkoxy or C1-8 alkyl substituted with one substituent selected from the following (1)-(8);

- (1) carbocyclic ring,
(2) heterocyclic ring,
(3) hydroxy,
(4) C1-4 alkoxy,
(5) -OCO-(C1-4 alkyl),
(6) -O-(C1-4 alkylene)-O-(C1-4 alkyl),

(7) $\text{NR}^{16}\text{R}^{17}$ (in which, R^{16} and R^{17} each, independently, is hydrogen or C1-4 alkyl),

(8) halogen),

(x) $-\text{CONR}^{18}\text{R}^{19}$ (in which, R^{18} is hydrogen or C1-4 alkyl which may be substituted with one phenyl, R^{19} is C1-8 alkyl or C2-4 alkenyl),

(xi) C1-8 alkyl substituted with 1 ~ 2 of substituent(s) selected from the group consisting of the following (1)-(7);

(1) hydroxy,

(2) C1-4 alkoxy,

(3) $-\text{O}-(\text{C1-4 alkylene})-\text{O}-(\text{C1-4 alkyl})$,

(4) tetrahydropyran-2-yloxy,

(5) $-\text{SR}^{20}$ (in which, R^{20} is hydrogen or C1-4 alkyl),

(6) halogen,

(7) $\text{NR}^{21}\text{R}^{22}$ (in which, R^{21} and R^{22} each, independently, is hydrogen or C1-4 alkyl),

(xii) hydroxy,

(xiii) C1-4 alkyl,

(xiv) C1-4 alkoxy,

(xv) phenyl,

(xvi) phenoxy,

(xvii) benzyloxy,

(xviii) $-\text{SR}^{23}$ (in which, R^{23} is hydrogen or C1-4 alkyl),

(xix) C2-5 acyl,

(xx) halogen,

(xxi) C1-4 alkoxy-carbonyl,

(xxii) nitro,

(xxiii) $-\text{NR}^{24}\text{R}^{25}$ (in which, R^{24} and R^{25} each, independently, is hydrogen, C1-4 alkyl or C1-4 alkoxy-carbonyl, or R^{24} and R^{25} taken together with nitrogen atom to which is attached represents 5 ~ 7-membered saturated heterocyclic ring necessary containing one nitrogen atom and optionally further containing one nitrogen atom or one oxygen atom),

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Sub A1
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A is single bond, -CO- or -SO₂-,

R² is hydrogen or C1-4 alkyl which may be substituted with one phenyl,

D is C1-4 alkylene or C2-4 alkenylene,

E is

- 1) -COO-,
- 2) -OCO-,
- 3) -CONR²⁶- (in which, R²⁶ is hydrogen or C1-4 alkyl),
- 4) -NR²⁷CO- (in which, R²⁷ is hydrogen or C1-4 alkyl),
- 5) -O-,
- 6) -S-,
- 7) -SO-,
- 8) -SO₂-,
- 9) -NR²⁸- (in which, R²⁸ is hydrogen or C1-4 alkyl),
- 10) -CO-,
- 11) -SO₂NR²⁹- (in which, R²⁹ is hydrogen or C1-4 alkyl) or
- 12) -NR³⁰SO₂- (in which, R³⁰ is hydrogen or C1-4 alkyl),

R³ is

- 1) carbocyclic ring,
- 2) heterocyclic ring or
- 3) C1-4 alkyl substituted with carbocyclic ring or heterocyclic ring,

in which, all the said carbocyclic ring and heterocyclic ring in R³ may be substituted with 1~3 of substituent(s) selected from the group consisting of the following (i)-

(xi):

- (i) C1-4 alkyl,
- (ii) C1-4 alkoxy,
- (iii) phenyl,
- (iv) phenoxy,
- (v) benzyloxy,
- (vi) -SR³¹ (in which, R³¹ is hydrogen or C1-4 alkyl),
- (vii) C2-5 acyl,
- (viii) halogen,

Sub A1
contd

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(ix) C1-4 alkoxy carbonyl,

(x) nitro,

(xi) $-NR^{32}R^{33}$ (in which, R^{32} and R^{33} each, independently, is hydrogen, C1-4 alkyl or C1-4 alkoxy carbonyl, or R^{32} and R^{33} taken together with nitrogen atom to which is attached represents 5 ~ 7-membered saturated heterocyclic ring necessary containing one nitrogen atom and optionally further containing one nitrogen atom or one oxygen atom),

J is

1) $-O-$,

2) $-NR^{34}-$ (in which, R^{34} is hydrogen, C1-4 alkyl which may be substituted with one phenyl, $NR^{35}R^{36}$ (in which, R^{35} and R^{36} each, independently, is hydrogen or C1-4 alkyl), hydroxy, C1-4 alkoxy, $-(C1-4 \text{ alkylene})-OH$, $-(C1-4 \text{ alkylene})-O-(C1-4 \text{ alkyl})$ or $-(C1-4 \text{ alkylene})-O-(C2-5 \text{ acyl})$),

3) $-NR^{37}-NR^{38}-$ (in which, R^{37} and R^{38} each, independently, is hydrogen or C1-4 alkyl which may be substituted with one phenyl),

4) $-NR^{39}-(C1-4 \text{ alkylene})-NR^{40}-$ (in which, R^{39} and R^{40} each, independently, is hydrogen or C1-4 alkyl which may be substituted with one phenyl),

5) $-NR^{41}-(C1-4 \text{ alkylene})-O-$ (in which, R^{41} is hydrogen or C1-4 alkyl which may be substituted with one phenyl) or

6) $-NR^{42}-(C1-4 \text{ alkylene})-S-$ (in which, R^{42} is hydrogen or C1-4 alkyl which may be substituted with one phenyl),

R^4 is R^{4-1} or R^{4-2} ,

R^{4-1} is

1) C1-8 alkyl,

2) carbocyclic ring,

3) heterocyclic ring or

4) C1-8 alkyl substituted with 1 ~ 3 of substituent(s) selected from the group consisting of the following (i)-(v);

(i) carbocyclic ring,

(ii) heterocyclic ring,

(iii) $COOR^{43}$ (in which, R^{43} is hydrogen or C1-4 alkyl substituted with one phenyl

Sub A1
contd

(in which, phenyl may be substituted with C1-4 alkoxy)),

(iv) SR^{44} (in which, R^{44} is hydrogen or C1-4 alkyl),

(v) OR^{45} (in which, R^{45} is hydrogen or C1-4 alkyl),

or when J is $-\text{NR}^{34}-$, $-\text{NR}^{37}-\text{NR}^{38}-$ or $-\text{NR}^{39}-(\text{C1-4 alkylene})-\text{NR}^{40}-$, each R^{4-1} and R^{34} , R^{4-1} and R^{38} , and R^{4-1} and R^{40} taken together with nitrogen atom to which is attached may represent heterocyclic ring,

in which all the said carbocyclic ring and heterocyclic ring in R^{4-1} , and heterocyclic ring represented by each R^{4-1} and R^{34} , R^{4-1} and R^{38} , and R^{4-1} and R^{40} taken together with nitrogen atom to which is attached may be substituted with 1 ~ 3 of substituent(s) selected from the group consisting of the following (i)-(x):

(i) C1-4 alkyl,

(ii) C1-4 alkoxy,

(iii) $-\text{SR}^{46}$ (in which, R^{46} is hydrogen or C1-4 alkyl),

(iv) C2-5 acyl,

(v) halogen,

(vi) C1-4 alkoxycarbonyl,

(vii) nitro,

(viii) $-\text{NR}^{47}\text{R}^{48}$ (in which, R^{47} and R^{48} each, independently, is hydrogen, C1-4 alkyl or C1-4 alkoxycarbonyl),

(ix) hydroxy,

(x) $-(\text{C1-4 alkylene})-\text{O}-(\text{C1-4 alkyl})$,

R^{4-2} is -L-M,

-L- is

1) -carbocyclic ring-,

2) -heterocyclic ring- or

3) $-(\text{C1-4 alkylene})-(\text{carbocyclic ring or heterocyclic ring})-$,

or when J is $-\text{NR}^{34}-$, $-\text{NR}^{37}-\text{NR}^{38}-$ or $-\text{NR}^{39}-(\text{C1-4 alkylene})-\text{NR}^{40}-$, each L and R^{34} , L and R^{38} , and L and R^{40} taken together with nitrogen atom to which is attached may represent -heterocyclic ring-,

M is

1) carbocyclic ring,

Sub A1
contd

FOOTNOTES

2) heterocyclic ring

3) C1-4 alkyl substituted with 1 ~2 of substituent(s) selected from the group consisting of the following (i)-(ii);

(i) carbocyclic ring,

(ii) heterocyclic ring,

4) -O-(carbocyclic ring or heterocyclic ring),

5) -S-(carbocyclic ring or heterocyclic ring),

6) -NR⁴⁹-(carbocyclic ring or heterocyclic ring) (in which, R⁴⁹ is hydrogen or C1-4 alkyl which may be substituted with one phenyl),

7) -O-(C1-4 alkylene)-(carbocyclic ring or heterocyclic ring),

8) -S-(C1-4 alkylene)-(carbocyclic ring or heterocyclic ring),

9) -NR⁵⁰-(C1-4 alkylene)-(carbocyclic ring or heterocyclic ring) (in which, R⁵⁰ is hydrogen, C1-4 alkyl which may be substituted with one phenyl or C2-5 acyl which may be substituted with 1 ~3 of halogen) or

10) -CO-(carbocyclic ring or heterocyclic ring),

or the said carbocyclic ring and heterocyclic ring in L and M, and heterocyclic ring represented by each L and R³⁴, L and R³⁸, and L and R⁴⁰ taken together with nitrogen atom to which is attached may be substituted with 1 ~3 of substituent(s) selected from the group consisting of the following (i)-(xiv);

(i) C1-4 alkyl,

(ii) C2-4 alkenyl,

(iii) hydroxy,

(iv) C1-4 alkoxy,

(v) -(C1-4 alkylene)-OH,

(vi) -(C1-4 alkylene)-O-(C1-4 alkyl),

(vii) halogen,

(viii) NR⁵¹R⁵² (in which, R⁵¹ and R⁵² each, independently, is hydrogen, C1-4 alkyl or C1-4 alkoxycarbonyl, or R⁵¹ and R⁵² taken together with nitrogen atom to which is attached represents 5 ~7-membered saturated heterocyclic ring necessary containing one nitrogen atom and optionally further containing one nitrogen atom or one oxygen atom),

(ix) SR^{53} (in which, R^{53} is hydrogen or C1-4 alkyl),
(x) nitro,
(xi) trifluoromethyl,
(xii) C1-4 alkoxy carbonyl,
(xiii) oxo,
(xiv) C2-5 acyl) or
a non-toxic salt thereof, or a hydrate thereof.

2. A compound according to claim 1, in which E is $-\text{COO}-$, $-\text{O}-$, $-\text{S}-$, $-\text{SO}-$ or $-\text{SO}_2-$.

3. A compound according to claim 1, in which E is $-\text{O}-$ or $-\text{S}-$.

4. A compound according to any one of claims 1 to 3, in which R^3 is carbocyclic ring or C1-4 alkyl substituted with carbocyclic ring (all the carbocyclic ring may be substituted).

5. A compound according to any one of claims 1 to 3, in which R^3 is C3-10 cycloalkyl or C1-4 alkyl substituted with C3-10 cycloalkyl (all the cycloalkyl may be substituted).

6. A compound according to any one of claims 1 to 3, in which R^3 is heterocyclic ring or C1-4 alkyl substituted with heterocyclic ring (all the heterocyclic ring may be substituted).

7. A compound according to any one of claims 1 to 6, in which R^1 is

- 1) phenyl,
 - 2) C3-8 cycloalkyl,
 - 3) C1-4 alkyl substituted with phenyl or C3-8 cycloalkyl,
 - 4) C1-4 alkoxy substituted with phenyl or C3-8 cycloalkyl or
 - 5) C2-4 alkenyl substituted with phenyl or C3-8 cycloalkyl
- (all the said phenyl, C3-8 cycloalkyl may be substituted).

8. A compound according to any one of claims 1 to 6, in which R¹ is

- 1) heterocyclic ring,
 - 2) C1-4 alkyl substituted with heterocyclic ring,
 - 3) C1-4 alkoxy substituted with heterocyclic ring or
 - 4) C2-4 alkenyl substituted with heterocyclic ring
- (all the said heterocyclic ring may be substituted).

9. A compound according to any one of claims 1 to 6, in which R¹ is

- 1) 5~15-membered mono- or bi-heterocyclic ring containing 1~2 nitrogen atom(s) and 1~2 oxygen atom(s) or one sulfur atom,
 - 2) C1-4 alkyl substituted with 5~15-membered mono- or bi-heterocyclic ring containing 1~2 nitrogen atom(s) and 1~2 oxygen atom(s) or one sulfur atom,
 - 3) C1-4 alkoxy substituted with 5~15-membered mono- or bi-heterocyclic ring containing 1~2 nitrogen atom(s) and 1~2 oxygen atom(s) or one sulfur atom or
 - 4) C2-4 alkenyl substituted with 5~15-membered mono- or bi-heterocyclic ring containing 1~2 nitrogen atom(s) and 1~2 oxygen atom(s) or one sulfur atom
- (all the said heterocyclic ring may be substituted).

10. A compound according to claim 1 which is

- 1) (2R)-N-(4-phenoxybenzyl)-3-cyclohexylmethylthio-2-((4R)-3-methoxymethylcarbonylthiazolidin-4-ylcarbonylamino)propanamide,
- 2) (2R)-N-(4-nitrobenzyl)-3-cyclohexylmethylthio-2-((4R)-3-(dimethylaminomethylcarbonyl)thiazolidin-4-ylcarbonylamino)propanamide,
- 3) (2R)-N-(4-methoxybenzyl)-3-cyclohexylmethylthio-2-((4R)-3-acetyloxymethylcarbonylthiazolidin-4-ylcarbonylamino)propanamide,
- 4) (2R)-N-(1-benzylpiperidin-4-yl)-3-cyclohexylmethylthio-2-((4R)-3-(pyridin-3-ylcarbonyl)thiazolidin-4-ylcarbonylamino)propanamide,
- 5) (2R)-N-(1-benzylpiperidin-4-yl)-3-cyclohexylmethylthio-2-((4R)-3-

acetyloxymethylcarbonylthiazolidin-4-ylcarbonylamino)propanamide,

6) (2R)-N-(4-phenoxybenzyl)-3-cyclohexylmethylthio-2-((4R)-3-acetyloxymethylcarbonylthiazolidin-4-ylcarbonylamino)propanamide,

7) (2R)-N-(4-phenoxybenzyl)-3-cyclohexylmethylthio-2-((4R)-3-(2-methoxyethoxymethylcarbonyl)thiazolidin-4-ylcarbonylamino)propanamide,

8) (2R)-N-(4-phenoxybenzyl)-3-cyclohexylmethylthio-2-((4R)-3-(pyridin-3-ylcarbonyl)thiazolidin-4-ylcarbonylamino)propanamide,

9) (2R)-N-(4-methoxybenzyl)-3-cyclohexylmethylthio-2-((4R)-3-(2-methoxyacetyl)thiazolidin-4-ylcarbonylamino)propanamide,

10) (2R)-N-(1-benzylpiperidin-4-yl)-3-cyclohexylmethylthio-2-((4R)-3-(2-methoxyacetyl)thiazolidin-4-ylcarbonylamino)propanamide,

11) (2R)-N-(1-benzylpiperidin-4-yl)-3-cyclohexylmethylthio-2-((4R)-3-allyloxycarbonylthiazolidin-4-ylcarbonylamino)propanamide,

12) (2R)-N-(4-phenoxybenzyl)-3-cyclohexylmethylthio-2-((4R)-3-allyloxycarbonylthiazolidin-4-ylcarbonylamino)propanamide,

13) (2R)-N-(4-methoxybenzyl)-3-cyclohexylmethylthio-2-((4R)-3-allyloxycarbonylthiazolidin-4-ylcarbonylamino)propanamide,

14) (2R)-N-(1-benzylpiperidin-4-yl)-3-cyclohexylmethylthio-((4R)-3-(2-ethoxy-1,2-dioxoethyl)thiazolidin-4-ylcarbonylamino)propanamide,

15) (2R)-N-(1-benzylpiperidin-4-yl)-3-cyclohexylmethylthio-((4R)-3-phenylsulfonylthiazolidin-4-ylcarbonylamino)propanamide,

16) (2R)-N-(4-phenoxybenzyl)-3-cyclohexylmethylthio-2-((4R)-3-(3-hydroxy-3-methylbutyryl)thiazolidin-4-ylcarbonylamino)propanamide,

17) (2R)-N-(4-methoxybenzyl)-3-cyclohexylmethylthio-2-((4R)-3-(2-hydroxy-2-methylpropionyl)thiazolidin-4-ylcarbonylamino)propanamide,

18) (2R)-N-(1-benzylpiperidin-4-yl)-3-cyclohexylmethylthio-2-((4R)-3-dimethylaminomethylcarbonylthiazolidin-4-ylcarbonylamino)propanamide,

19) (2R)-N-(1-benzylpiperidin-4-yl)-3-cyclohexylmethylthio-2-((4R)-3-(morpholin-4-ylmethylcarbonyl)thiazolidin-4-ylcarbonylamino)propanamide,

20) (2R)-N-(1-benzylpiperidin-4-yl)-3-cyclohexylmethylthio-2-((4R)-3-(3-hydroxy-3-methylbutyryl)thiazolidin-4-ylcarbonylamino)propanamide,

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Sub A³
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- 21) (2R)-N-(4-phenoxybenzyl)-3-cyclohexylmethylthio-2-((4R)-3-(2-dimethylaminoacetyl)thiazolidin-4-ylcarbonylamino)propanamide,
- 22) (2R)-N-(4-phenoxybenzyl)-3-cyclohexylmethylthio-2-((4R)-3-(2-hydroxy-2-methylpropionyl)thiazolidin-4-ylcarbonylamino)propanamide,
- 23) (2R)-N-(4-phenoxybenzyl)-3-cyclohexylmethylthio-2-((4R)-3-(morpholin-4-ylmethylcarbonyl)thiazolidin-4-ylcarbonylamino)propanamide,
- 24) (2R)-N-(4-phenoxybenzyl)-3-cyclohexylmethylthio-2-((4R)-3-carboxymethylthiazolidin-4-ylcarbonylamino)propanamide,
- 25) (2R)-N-(4-nitrobenzyl)-3-cyclohexylmethylthio-2-((4R)-3-(3-methylbutyl)thiazolidin-4-ylcarbonylamino)propanamide,
- 26) (2R)-N-(4-methoxybenzyl)-3-cyclohexylmethylthio-2-((4R)-3-(2-hydroxyethyl)thiazolidin-4-ylcarbonylamino)propanamide,
- 27) (2R)-N-(1-benzylpiperidin-4-yl)-3-cyclohexylmethylthio-2-((4R)-3-(2-hydroxyethyl)thiazolidin-4-ylcarbonylamino)propanamide,
- 28) (2R)-N-(4-methoxybenzyl)-3-cyclohexylmethylthio-2-((4R)-3-(3-hydroxy-3-methylbutyl)thiazolidin-4-ylcarbonylamino)propanamide,
- 29) (2R)-N-(1-benzylpiperidin-4-yl)-3-cyclohexylmethylthio-2-((4R)-3-(3-hydroxy-3-methylbutyl)thiazolidin-4-ylcarbonylamino)propanamide,
- 30) (2R)-N-(1-benzylpiperidin-4-yl)-3-cyclohexylmethylthio-2-((4R)-3-(3-hydroxypropyl)thiazolidin-4-ylcarbonylamino)propanamide,
- 31) (2R)-N-(1-benzylpiperidin-4-yl)-3-cyclohexylmethylthio-2-((4R)-3-carboxymethylthiazolidin-4-ylcarbonylamino)propanamide,
- 32) (2R)-N-(4-phenoxybenzyl)-3-cyclohexylmethylthio-2-((4R)-3-(2-hydroxyethyl)thiazolidin-4-ylcarbonylamino)propanamide,
- 33) (2R)-N-(4-phenoxybenzyl)-3-cyclohexylmethylthio-2-((4R)-3-(2,3-dihydroxypropyl)thiazolidin-4-ylcarbonylamino)propanamide,
- 34) (2R)-N-(4-phenoxybenzyl)-3-cyclohexylmethylthio-2-((4R)-3-(2-methoxyethyl)thiazolidin-4-ylcarbonylamino)propanamide,
- 35) (2R)-N-(4-phenoxybenzyl)-3-cyclohexylmethylthio-2-((4R)-3-(2,3-dimethoxypropyl)thiazolidin-4-ylcarbonylamino)propanamide,
- 36) (2R)-N-(4-phenoxybenzyl)-3-cyclohexylmethylthio-2-((4R)-3-(3-hydroxy-3-

Sub A 3
contd

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- methylbutyl)thiazolidin-4-ylcarbonylamino)propanamide,
- 37) (2R)-N-(4-phenoxybenzyl)-3-cyclohexylmethylthio-2-((4R)-3-(3-hydroxypropyl)thiazolidin-4-ylcarbonylamino)propanamide,
- 38) (2R)-N-((1R)-1-(4-nitrophenyl)ethyl)-3-cyclohexylmethylthio-2-((4R)-3-t-butylcarbonylthiazolidin-4-ylcarbonylamino)propanamide,
- 39) (2R)-N-(4-methoxybenzyl)-3-cyclohexylmethylthio-2-((2RS)-3-t-butoxycarbonyl-1-oxothiazolidin-2-ylcarbonylamino)propanamide,
- 40) (2R)-N-(4-methoxybenzyl)-3-cyclohexylmethylthio-2-((2RS)-3-t-butoxycarbonyl-1,1-dioxothiazolidin-2-ylcarbonylamino)propanamide,
- 41) (2R)-N-(4-methoxybenzyl)-3-cyclohexylmethylthio-2-((4R)-3-t-butoxycarbonyl-1,1-dioxothiazolidin-4-ylcarbonylamino)propanamide,
- 42) (2R)-N-(4-methoxybenzyl)-3-cyclohexylmethylthio-2-((4R)-3-t-butoxycarbonyl-1-oxothiazolidin-4-ylcarbonylamino)propanamide,
- 43) (2R)-N-(4-methoxybenzyl)-3-cyclohexylmethysulfinyl-2-((4R)-3-t-butoxycarbonyl-1-oxothiazolidin-4-ylcarbonylamino)propanamide,
- 44) (2R)-N-(4-methoxybenzyl)-3-cyclohexylmethylthio-2-((2RS, 4R)-3-t-butoxycarbonyl-2-methoxymethylthiazolidin-4-ylcarbonylamino)propanamide,
- 45) (2R)-N-(4-methoxybenzyl)-3-cyclohexylmethylthio-2-((2RS, 4R)-3-t-butoxycarbonyl-2-hydroxymethylthiazolidin-4-ylcarbonylamino)propanamide,
- 46) (2R)-N-(4-methoxybenzyl)-3-cyclohexylmethylthio-2-((2RS, 4R)-3-t-butoxycarbonyl-2-(2-methylthioethyl)thiazolidin-4-ylcarbonylamino)propanamide,
- 47) (2R)-N-(1-benzylpiperidin-4-yl)-3-cyclohexylmethylthio-2-((4R)-3-t-butoxycarbonyl-1,1-dioxothiazolidin-4-ylcarbonylamino)propanamide,
- 48) (2R)-N-(1-benzylpiperidin-4-yl)-3-cyclohexylmethylthio-2-((4R)-3-t-butoxycarbonyl-1-oxothiazolidin-4-ylcarbonylamino)propanamide,
- 49) (2R)-N-(1-benzylpiperidin-4-yl)-3-cyclohexylmethylthio-((4S)-3-t-butoxycarbonyl-2-oxooxazolidin-4-ylcarbonylamino)propanamide,
- 50) (2R)-N-(4-methoxybenzyl)-3-cyclohexylmethylthio-2-((2RS, 4R)-2-methoxymethylthiazolidin-4-ylcarbonylamino)propanamide,
- 51) (2R)-N-(4-methoxybenzyl)-3-cyclohexylmethylthio-2-((2RS, 4R)-2-hydroxymethylthiazolidin-4-ylcarbonylamino)propanamide,

- 52) (2R)-N-(4-methoxybenzyl)-3-cyclohexylmethylthio-2-((2RS, 4R)-2-(2-methylthioethyl)thiazolidin-4-ylcarbonylamino)propanamide,
- 53) (2R)-N-(4-phenoxybenzyl)-3-cyclohexylmethylthio-2-((4R)-3-hydroxymethylcarbonylthiazolidin-4-ylcarbonylamino)propanamide,
- 54) (2R)-N-(4-methoxybenzyl)-3-cyclohexylmethylthio-2-((4R)-3-hydroxymethylcarbonylthiazolidin-4-ylcarbonylamino)propanamide,
- 55) (2R)-N-(1-benzylpiperidin-4-yl)-3-cyclohexylmethylthio-2-((4R)-3-hydroxymethylcarbonylthiazolidin-4-ylcarbonylamino)propanamide,
- 56) (2R)-N-(4-phenoxybenzyl)-3-cyclohexylmethylthio-2-((4R)-3-(morpholin-4-ylcarbonylmethyl)thiazolidin-4-ylcarbonylamino)propanamide,
- 57) (2R)-N-(1-benzylpiperidin-4-yl)-3-cyclohexylmethylthio-2-((4R)-3-(morpholin-4-ylcarbonylmethyl)thiazolidin-4-ylcarbonylamino)propanamide,
- 58) (2R)-N-(4-phenoxybenzyl)-3-cyclohexylmethylthio-2-((4R)-3-(2-(tetrahydropyran-2-yloxy)ethyl)thiazolidin-4-ylcarbonylamino)propanamide,
- 59) (2R)-N-(1-benzylpiperidin-4-yl)-3-cyclohexylmethylthio-2-((4R)-3-(2-methoxyethoxycarbonyl)thiazolidin-4-ylcarbonylamino)propanamide,
- 60) (2R)-N-(1-benzylpiperidin-4-yl)-3-cyclohexylmethylthio-2-((4R)-3-chloromethoxycarbonylthiazolidin-4-ylcarbonylamino)propanamide,
- 61) (2R)-N-(1-benzylpiperidin-4-yl)-3-cyclohexylmethylthio-2-((4R)-3-(3,3-dimethylbutyryl)thiazolidin-4-ylcarbonylamino)propanamide,
- 62) (2R)-N-(1-benzylpiperidin-4-yl)-3-cyclohexylmethylthio-2-((4R)-3-cyclopentylcarbonylthiazolidin-4-ylcarbonylamino)propanamide,
- 63) (2R)-N-(1-benzylpiperidin-4-yl)-3-cyclohexylmethylthio-2-((4R)-3-benzoylthiazolidin-4-ylcarbonylamino)propanamide,
- 64) (2R)-N-(1-benzylpiperidin-4-yl)-3-cyclohexylmethylthio-((4R)-3-(3,3-dimethyl-1,2-dioxobutyl)thiazolidin-4-ylcarbonylamino)propanamide,
- 65) (2R)-N-(1-benzylpiperidin-4-yl)-3-cyclohexylmethylthio-((4R)-2,2,5,5-tetramethylthiazolidin-4-ylcarbonylamino)propanamide,
- 66) (2R)-N-(1-benzylpiperidin-4-yl)-3-cyclohexylmethylthio-((2S)-1-t-butoxycarbonyl-4-oxopyrrolidin-2-ylcarbonylamino)propanamide or
- 67) (2R)-N-(1-benzylpiperidin-4-yl)-3-cyclohexylmethylthio-((2S, 4R)-1-t-

Sub A3
contd

butoxycarbonyl-4-hydroxypyrrolidin-2-ylcarbonylamino)propanamide
or non-toxic salts thereof.

11. A compound according to claim 1 which is

- 1) (2R)-N-(1-benzylpiperidin-4-yl)-3-cyclohexylmethylthio-2-((4R)-3-isopropylsulfonylthiazolidin-4-ylcarbonylamino)propanamide,
- 2) (2R)-N-(1-benzylpiperidin-4-yl)-3-cyclohexylmethylthio-2-((4R)-3-cyclopentylsulfonylthiazolidin-4-ylcarbonylamino)propanamide or
- 3) (2R)-N-(1-benzylpiperidin-4-yl)-3-cyclohexylmethylthio-2-((4R)-3-isobutylsulfonylthiazolidin-4-ylcarbonylamino)propanamide
or non-toxic salts thereof.

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Sub A4 12. A pharmaceutical composition comprising, as an active ingredient, an amino acid derivative of the formula (I) depicted in claim 1 or a non-toxic salt thereof, or a hydrate thereof.

13. An N-type calcium channel inhibitor comprising, as an active ingredient, an amino acid derivative of the formula (I) depicted in claim 1 or a non-toxic salt thereof, or a hydrate thereof.

14. A pharmaceutical composition for prevention and/or treatment of cerebral infarct, transient ischemic attack, encephalomyelopathy after cardiac operation, spinal angiopathy, hypertension with stress, neurosis, epilepsy, asthma and pollakiuria comprising, as an active ingredient, an amino acid derivative of the formula (I) depicted in claim 1 or a non-toxic salt thereof, or a hydrate thereof.

15. A pharmaceutical composition for treatment of pain comprising, as an active ingredient, an amino acid derivative of the formula (I) depicted in claim 1 or a non-toxic salt thereof, or a hydrate thereof.

Add A5